

Storm King®

Prevent 100% of CSO floatables and gross solids reaching the environment

Product Summary

The Storm King® is an advanced hydrodynamic vortex separator and screen that delivers exceptional removal of Total Suspended Solids (TSS), Biological Oxygen Demand (BOD) and other materials at combined sewer overflow sites, preventing damaging pollutants from reaching the environment.

Non-powered and self-cleansing, the Storm King® is ideal for satellite treatment at overflow sites and has been shown to reduce project costs by up to 50% compared to conventional technologies.

Applications

- » Floatables control
- » New satellite CSO facilities and upgrades to existing CSO facilities.
- » Treatment of excess stormwater flows at WwTWs.
- » Treatment at centralised stormwater treatment plants.

Main Features

1. Self-cleansing screen
2. Backwash siphon
3. Separation chamber
4. Underflow and screened solids returned to treatment

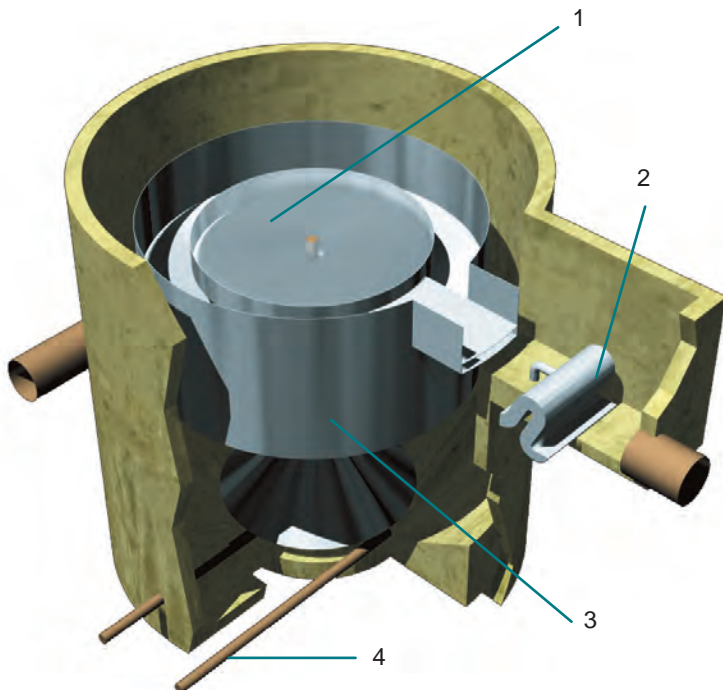


Fig.1 The Storm King® combined sewer overflow screening and separation system.

Performance

- » 100% removal of solids 6 mm in two directions, including floatables, gross solids and neutrally buoyant material.
- » 95% removal of grits and sediments.
- » Low headloss.
- » Self-activating and self-cleansing.
- » Combined sedimentation and screening.
- » Option to include disinfection.

Benefits

Reduce project costs

The Storm King® is a small-footprint, non-powered, low-maintenance unit with low capital and operation and maintenance costs, and offers 50% project costs savings when compared with conventional technologies such as micro-strainers.

Cut maintenance

With no moving parts, no power requirements and self-cleansing components, the Storm King® is a low-maintenance CSO option.

Combined screening and sedimentation in one device

The Storm King® incorporates both a screen and a hydrodynamic separator to ensure exceptional removal of CSO pollutants,

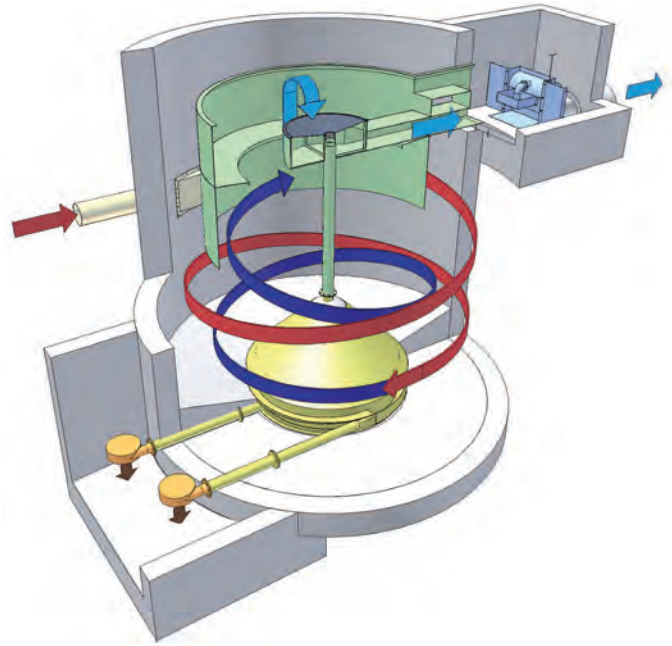
Trials conducted in the US at Columbus, GA and Saco, ME show that the unit can also be used to provide disinfection in 30% of the area normally required for conventional disinfection technologies.

Design requirements

- » Flow rates.
- » Spill frequency.
- » Hydraulic conditions.

How it works

- 1) Flow is introduced tangentially into the side of the Storm King® causing the contents to rotate slowly about the vertical axis.
- 2) The flow spirals down the perimeter allowing solids to settle out. This process is aided by rotary forces, shear forces and drag forces at the boundary layer on the wall and base of the vessel (**red arrow**).
- 3) The internal components keep the settleable solids around the perimeter while the cleansed, main flow is directed back up the middle of the vessel as a broad spiralling column, rotating at a slower velocity than the outer downward flow. By the time the flow reaches the top of the vessel, it is virtually free of settleable solids and is discharged to the outlet channel. Prior to discharge, the overflow passes through the self-cleaning screen (**dark blue arrow**).
- 4) The self-cleaning screen captures all floatables and neutrally buoyant material down to 6mm. The air regulated siphon provides an effective backwash mechanism to prevent the screen from blinding (**light blue arrow**).
- 5) The collected solids and floatables are then discharged by gravity or pumped out from the base of the unit to the Continuation flow to the treatment works (**brown arrow**).



Maintenance

The Storm King® incorporates a screen with a hydraulically operated siphon that regulates the self-cleansing dynamic backwashing system.

With no moving parts, no power requirements and self-cleansing components, the Storm King® is a low-maintenance CSO option.

Make it Smart:

Add Hydro-Logic® Event Duration Monitoring, for data and alerts on the status of your CSO.



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To find out how the Storm King® can help you prevent sediments and gross solids reaching the environment call 01275 878371 or visit:

→ hydro-int.com/storm-king